incision over the eighth or ninth rib and resects subperiosteally the desired length of the rib. As a rule 8 to 10 cm. is sufficient. The pleura is opened between forceps, like the peritoneum. The lung is usually adherent and does not collapse. Even if not adherent it seldom collapses to less than half its bulk, when the patient is lying prone, and there is comparatively little respiratory disturbance. Next inspect the structures closely. The lung may be so closely adherent to the diaphragm that it will be very difficult to recognize the line of junction. Wall off the rest of the pleural cavity with moist gauze. Then with fingers, dissecting forceps, or even knife and scissors (according to the density of the adhesions) the lung should be gently released. Usually it is well to clear the diaphragm first. If no pus is found here, the packs are rearranged so as to protect the lower part of the pleural cavity, and a search is begun in the fissures of the lung. The lung is absolutely insensitive to these manipulations. When pus is finally located and has been evacuated, a rubber tube (with a lumen of at least 1 cm.) surrounded with loose iodoform gauze is placed in the abscess cavity, the isolating packs are removed, and the wound is closed in layers, but not too tightly, around the drainage tract—the pleura and intercostal structures in one layer, and then the skin. He concludes that cases of pleural effusion suspected of being purulent should be punctured (with a hollow needle attached to a tight syringe) and if the effusion is massive most of it should be removed by aspiration one or two days before thoracotomy is undertaken. If the fluid found on puncture is serous or seropurulent, thoracotomy may usually be postponed, until frank pus has formed, as this delay will permit the formation of firmer adhesions and thus prevent complete collapse of the lung when the empyema is opened. Cures of such seropurulent effusions have so rarely occurred without final resort to thoracotomy that attempts to cure them by injection of antiseptic fluids into the unopened pleura are usually detrimental to the patient. If in a case of a suspected empyema the symptoms are urgent, but pus cannot be found by puncture, exploratory thoracotomy should be undertaken in an effort to locate and drain the pus. The operation of thoracotomy for empyema should provide free and dependent drainage, secured by the resection of a rib, usually the ninth, tenth or eleventh, in front of its angle. This operation may be done with perfect satisfaction to both patient and surgeon under local anesthesia, and in most cases this is preferable to a general anesthetic. Postoperative irrigations are unnecessary, unless after several months the lung shows no tendency to expand, when the use of Dakin's fluid may prove beneficial. In selected cases (those with small cavity) injections of bismuth paste may procure closure of the sinus. If the cavity cannot be made to heal by these means, the surgeon should do a major thoracotomy, combined with decortication of the lung and discission of the pleura, and in some cases resection of a number of ribs to permit the chest wall to collapse in part and meet the expanding lung.

Some Principles Involved in the Treatment of Empyema.—GRAHAM (*Surg., Gynec. and Obst.,* 1920, xxxi, 60) says that his appointment as a member of the Empyema Commission enabled him to observe an unusually large number of cases, and this opportunity was supplemented by being placed in charge of 138 cases of chronic empyema at Fort Sheridan, Illinois, upon his return from France, in May, 1919. He has tested out by experiment the soundness of the principles advocated by this Commission and challenged by some as unsound. He summarizes his work as follows: The extensive recent literature on empyema reveals both a striking tendency toward more or less standardized treatment and a radical departure from methods in use prior to the war. He discusses the cardinal principles of (1) the avoidance of an open pneumothorax during the acute pneumonic stage of the disease; (2) early sterilization and obliteration of the cavity, and (3) the maintenance of the nutrition of the patient. In the normal thorax the mediastinal structures are so mobile that their resistance is negligible from the standpoint of pressure relationships so that the thorax can be considered as one cavity instead of two. Any change of pressure in one pleural cavity will manifest itself to practically the same degree in the other pleural cavity with the result that both lungs will be about equally compressed. The situation in this respect is the same in the dog as in the human, and, therefore, experimental results obtained on the dog can be directly applied to the human. The likelihood of a fatal asphyxia as a result of an open pneumothorax depends upon a number of factors, important ones of which are the size of the opening and the vital capacity of the individual. A mathematical expression has been devised by which it is possible in a given case to approximate the nonfatal opening in the chest wall if the vital capacity is known. One who has an average vital capacity (3700 cubic centimeters) and a normal thorax can withstand an opening in the chest wall of 51 square centimeters (8 square inches), but the individual of exceptional vital capacity (as, for example, 7100 cubic centimeters), can live with an opening of 101 square centimeters (15.6 square inches). A bilateral open pneumothorax is practically no more dangerous to life than a unilateral opening provided that in each case the areas of the openings are the same. These observations have a very important bearing on the question of open drainage of cases of empyema, particularly during the acute pneumonic stage when the vital capacity is low. After adhesions have formed and the mediastinum has become somewhat stabilized, both by adhesions and inflammatory induration, then the pressure relationships may be materially different on the two sides. Collapsing thoracoplastic operations have the disadvantage, even when successful, of apparently permanently reducing the vital capacity.

Chronic Paroxysmal Trigeminal Neuralgia and Its Treatment.—Harris (*British Med. Jour.*, May 22, 1920, 693) says that in the last twelve years he has had 312 cases. Only a comparatively small number get relief from drugs. Practically the only two methods of relief are gasserectomy and alcohol injections. The former operation should never be undertaken until alcohol injection has been thoroughly tried. During the last ten years Harris has injected the Gasserian ganglion 63 times. In 31 the anesthesia has remained total and no recurrence of pain has taken place. In many of the remainder partial ganglion anesthesia has persisted though pressure could be felt, yet the relief from pain appears to be equally good. In many cases, though total ganglion anesthesia is produced at the time of injection, yet the anes-